1. (Original) A method comprising:

receiving a radio signal from a remote terminal at a plurality of antennas;

comparing characteristics of the received signal as received at the plurality of antennas;

determining whether reception of radio signals transmitted to the remote terminal is likely to be improved by diversity transmission based on the comparisons; and

transmitting radio signals to the remote terminal using diversity if the reception is likely to be improved.

2. (Original) The method of claim 1, wherein comparing characteristics comprises determining a spatial signature of the received signal.

3. (Original) The method of claim 2, wherein comparing characteristics comprises determining relative phases and amplitudes of the received signal.

4. (Original) The method of claim 1, wherein determining comprises estimating an amount of scattering of the received signal.

5. (Original) The method of claim 1, wherein determining comprises estimating a level of multipath interference.

6. (Original) The method of claim 1, wherein transmitting comprises transmitting a radio signal from two different spaced apart antennas.

7. (Previously Presented) The method of claim 1, wherein transmitting comprises transmitting a radio signal at two different times, the times being spaced by at least the duration of one quarter of the reciprocal of the bandwidth of the modulated waveform of the radio signal.

8. (Original) The method of claim 1, wherein transmitting comprises transmitting a radio signal from the plurality of antennas with two different phase and amplitude signatures.

9. (Original) The method of claim 1, wherein transmitting comprises transmitting a radio signal from the plurality of antennas with two different sets of beam forming weights.

10. (Original) The method of claim 1 wherein transmitting comprises setting transmit weights for a first signal and at least one delayed diversity signal copy based on the determining so that the delayed diversity signal copy receives a weight of greater magnitude if the reception is likely to be improved and a weight of lesser magnitude if the reception is not likely to be improved.

11. (Original) The method of claim 10 wherein transmitting further comprises transmitting using a spatial signature for the first signal and the at least one delayed diversity signal copy.

12. (Original) A method comprising:

receiving a radio signal from a remote terminal;

measuring characteristics of the received signal; and

selecting an amount of beam forming and an amount of transmit diversity to be applied to a transmitted signal using the measured characteristics.

13. (Original) The method of claim 12, wherein selecting comprises estimating a spatial signature of the received signal by comparing relative phases and amplitudes of the received signal as received at a plurality of antennas.

14. (Original) The method of claim 12, wherein selecting comprises estimating an amount of scattering of the received signal.

15. (Original) The method of claim 12, wherein selecting comprises determining a level of multipath interference.

16. (Original) The method of claim 12, wherein selecting comprises measuring a signal quality of the received signal.

17. (Original) The method of claim 16 wherein selecting further comprises measuring a signal quality of the received signal as received at a plurality of antennas and comparing the measured signal qualities to each other.

18. (Original) The method of claim 12, wherein measuring further comprises measuring the received signal amplitude at a plurality of antennas and wherein selecting comprises comparing the measured amplitudes to each other.

19. (Original) The method of claim 12, wherein selecting an amount of transmit diversity comprises applying weighting coefficients to a first transmitted signal and a delayed copy of the first transmitted signal, the amount of transmit diversity being greater as the magnitude of the weights are made more equivalent.

20. (Original) The method of claim 19 wherein the delayed copy is transmitted from an antenna spaced apart from the antenna that transmits the first transmitted signal.

21. (Original) The method of claim 19, wherein the delayed copy is delayed by at least the duration of one quarter of the reciprocal of the bandwidth of the modulated waveform of the radio signal.

22. (Original) The method of claim 12 wherein selecting comprises choosing one of either beam forming or transmit diversity to be applied to the transmitted signal.

23. (Original) A machine-readable medium having stored thereon data representing instructions which, when executed by a machine, cause the machine to perform operations comprising:

receiving a radio signal from a remote terminal at a plurality of antennas;

comparing characteristics of the received signal as received at the plurality of antennas;

determining whether reception of radio signals transmitted to the remote terminal is likely to be improved by diversity transmission based on the comparisons; and

transmitting radio signals to the remote terminal using diversity if the reception is likely to be improved.

24. (Original) The medium of claim 23, wherein the instructions for comparing characteristics comprise instructions which, when executed by the machine, cause the machine to perform further operations comprising determining relative phases and amplitudes of the received signal.

25. (Original) The medium of claim 23, wherein the instructions for transmitting comprise instructions which, when executed by the machine, cause the machine to perform further operations comprising transmitting a radio signal at two

different times, the times being spaced by at least the duration of one quarter of the reciprocal of the bandwidth of the modulated waveform of the radio signal..

26. (Original) The medium of claim 23, wherein the instructions for transmitting comprise instructions which, when executed by the machine, cause the machine to perform further operations comprising transmitting a radio signal from the plurality of antennas with two different sets of beam forming weights.

27. (Original) A machine-readable medium having stored thereon data representing instructions which, when executed by a machine, cause the machine to perform operations comprising:

receiving a radio signal from a remote terminal;

measuring characteristics of the received signal; and

selecting an amount of beam forming and an amount of transmit diversity to be applied to a transmitted signal using the measured characteristics.

28. (Original) The medium of claim 27, wherein the instructions for selecting comprise instructions which, when executed by the machine, cause the machine to perform further operations comprising estimating a spatial signature of the received signal by comparing relative phases and amplitudes of the received signal as received at a plurality of antennas.

29. (Original) The medium of claim 27, wherein the instructions for selecting an amount of transmit diversity comprise instructions which, when executed by the machine, cause the machine to perform further operations comprising applying weighting coefficients to a first transmitted signal and a delayed copy of the first transmitted signal,

the amount of transmit diversity being greater as the magnitude of the weights are made more equivalent.

30. (Original) An apparatus comprising:

a plurality of antennas to receive a radio signal from a remote terminal;

a processor to compare characteristics of the received signal as received at the plurality of antennas, to determine whether reception of radio signals transmitted to the remote terminal is likely to be improved by diversity transmission based on the comparisons, and to select diversity transmission for radio signals to be transmitted to the remote terminal if the reception is likely to be improved.

31. (Original) The apparatus of claim 30, wherein comparing characteristics comprises determining a spatial signature of the received signal.

32. (Original) The apparatus of claim 30 further comprising two different spaced apart antennas from which to transmit radio signals with diversity.

33. (Original) The apparatus of claim 30 wherein the diversity transmission comprises a first signal and at least one delayed copy of the first signal.

34. (Original) An apparatus comprising:

a receive array to receive a radio signal from a remote terminal;

a processor to measure characteristics of the received signal and to select an amount of beam forming and an amount of transmit diversity to be applied to a transmitted signal using the measured characteristics.

35. (Original) The apparatus of claim 34, wherein the processor selects an amount of transmit diversity by applying weighting coefficients to a first transmitted signal and a delayed copy of the first transmitted signal, the amount of transmit diversity being greater as the magnitude of the weights are made more equivalent.

36. (Original) The apparatus of claim 34 wherein the processor selects an amount by choosing one of either beam forming or transmit diversity to be applied to the transmitted signal.

37. (Original) The method of claim 1, wherein the received radio signal conforms to a standard for at least one of TDMA, GSM, DAMPS, CDMA, FDMA and TDD.

38. (Original) The method of claim 12, wherein the received radio signal conforms to a standard for at least one of TDMA, GSM, DAMPS, CDMA, FDMA and TDD.

39. (Original) The apparatus of claim 30, wherein the apparatus is comprised in at least one of a TDMA, a GSM, a DAMPS, a CDMA, a FDMA and a TDD radio communications system.

40. (Original) The apparatus of claim 34, wherein the apparatus is comprised in at least one of a TDMA, a GSM, a DAMPS, a CDMA, a FDMA and a TDD radio communications system.